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PLEASE RETURN

The Yellowstone River

Instream

Reservation

December 16, 1984 - December 15, 1985

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SEVENTH ANNUAL REPORT

Compiled By
Larry Peterman and Fred Nelson

Montana Department of Fish, Wildlife and Parks
Fisheries Division
1420 East Sixth Avenue
Helena, Montana 59620

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THE YELLOWSTONE RIVER
INSTREAM RESERVATION

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INTRODUCTION

The Order of the Board of Natural Resources and Conservation establishing water reservations for the Yellowstone basin was signed on December 15, 1978. As a result of that Order, the Department of Fish, Wildlife and Parks (MDFWP) was granted an instream reservation for the Yellowstone at Sidney of approximately 5.5 million acre-feet of water with varying amounts granted in upstream areas and tributaries.

The MDFWP applied for instream reservations on many streams and tributaries where little, if any, flow data were available. In granting an instream reservation for those waters, the Board frequently granted a percentile flow rather than a specific amount of water in acre-feet or cfs. In such areas, the department was directed by the Board through condition 116 to develop and submit to the Board within 5 years of December 15, 1978, a plan to convert the minimum flow instream reservation quantities into cubic feet of water per second and acre-feet of water per month.

Condition 117 states that the reservant shall submit to the Board an annual progress report setting forth accomplishments toward completion of such work as outlined condition 116, a schedule of anticipated progress and other information as may be required. This report is designed to fulfill the requirement of the seventh-year annual progress report.

INSTREAM FLOW QUANTIFICATIONS

The quantification of the granted percentile flows is being completed by the Helena office of the USGS through a cost-share cooperative agreement with the MDFWP. During the first year of the agreement (phase 1), the needed flow data were collected for 22 stream sites within the Yellowstone River drainage upstream from Livingston, Montana. The preliminary instream flow quantifications that were derived by the USGS for these sites were presented in the fifth annual report. During the second year of the agreement (phase 2), the needed flow data were collected for 19 stream sites in the Shields River drainage and the Yellowstone drainage downstream from Livingston and the preliminary flow quantifications for these sites presented in the sixth annual report. The draft of a formal report that finalizes the quantifications for phase 1 and 2 streams was completed by the USGS in September, 1985 and reviewed by this Department. The final is scheduled for release in 1986.

The quantification of the granted percentile flows for the Yellowstone spring creeks and tributaries to the Stillwater and Clarks Fork rivers will be completed by the USGS during phase 3 of the agreement (see page 5 of the sixth annual report for a list of these remaining streams). Collection of the needed flow data for phase 3 streams began in May, 1985 and will continue through April, 1986. Field measurements are being made at 14 sites (see Appendix A for a list of sites and flow measurements collected to date). For another 10 sites, existing flow data collected by the USGS and MDFWP are believed sufficient for use in quantifying the granted flows. These quantifications will be included in the final phase 3 report, which is scheduled for release in 1987.

Other Completed Tasks

The six flow quantifications listed on pages 3 and 4 of the fifth annual report were recalculated by the USGS to encompass the 1934-82 base flow period (Table 1). All quantifications of percentile flows will reflect this period. These six sites are:

1. Bluewater Creek (Mouth-Headwaters) #6-2078
2. Brackett Creek (Mouth-Sheep Creek) #6-1940
3. Rock Creek (Mouth-Custer National Forest) #6-2095
4. Sweet Grass Creek (Mouth-Forest Service boundary) #6-2005
5. Clarks Fork Yellowstone River #6-2075 (near Belfry)
6. Clarks Fork Yellowstone River #6-2085 (at Edgar)

At least ten years of continuous daily flow records have recently been completed for four gage sites established by the USGS in the 1970s. The quantification of the granted flows for these sites were calculated using these records (Tables

Table 1. Quantification of granted percentile flows in cubic feet of water per second and acre-feet per month. Flow quantifications are adjusted to a common 1934-82 base period.

	<u>Bluewater Creek</u> <u>85th Percentile</u>		<u>Brackett Creek</u> <u>50th Percentile</u>	
	<u>cfs</u>	<u>AF</u>	<u>cfs</u>	<u>AF</u>
Jan.	26.5	1,629	7.0	430
Feb.	27.5	1,527	7.0	389
Mar.	27.0	1,660	9.0	553
Apr.	28.0	1,666	42.0	2,499
May	27.0	1,660	93.0	5,717
Jun.	25.5	1,517	79.0	4,700
Jul.	24.0	1,475	27.0	1,660
Aug.	25.0	1,537	10.0	615
Sep.	26.0	1,547	11.0	654
Oct.	27.0	1,660	11.0	676
Nov.	27.0	1,606	9.0	535
Dec.	27.0	1,660	7.0	430
	<hr/> 19,144 AF/year		<hr/> 18,858 AF/year	

	<u>Rock Creek</u> <u>85th Percentile</u>		<u>Sweet Grass Creek</u> <u>90th Percentile</u>	
	<u>cfs</u>	<u>AF</u>	<u>cfs</u>	<u>AF</u>
Jan.	29.0	1,783	8.0	492
Feb.	27.0	1,499	8.0	444
Mar.	25.5	1,568	8.0	492
Apr.	30.0	1,785	10.0	595
May	113.0	6,946	84.0	5,164
Jun.	418.5	24,897	252.0	14,991
Jul.	326.5	20,071	112.0	6,885
Aug.	205.5	12,633	41.0	2,520
Sep.	108.5	6,455	26.0	1,547
Oct.	66.0	4,057	20.0	1,229
Nov.	45.0	2,677	16.0	952
Dec.	34.5	2,121	10.0	615
	<hr/> 86,492 AF/year		<hr/> 35,926 AF/year	

Table 1 continued.

	Clarks Fork Yellowstone River Near Belfry		Clarks Fork Yellowstone River at Edgar	
	70th Percentile June-Sept.		70th Percentile June-Sept.	
	90th Percentile Oct.-May		90th Percentile Oct.-May	
	<u>cfs</u>	<u>AF</u>	<u>cfs</u>	<u>AF</u>
Jan.	186.0	11,434	300.0	18,442
Feb.	194.0	10,772	299.0	16,602
Mar.	189.0	11,618	308.0	18,934
Apr.	250.0	14,873	357.0	21,238
May	1,062.0	65,284	1,051.0	64,608
Jun.	3,477.0	206,847	3,569.0	212,320
Jul.	1,640.0	100,816	1,537.0	94,484
Aug.	423.0	26,003	399.0	24,528
Sept.	240.0	14,278	393.0	23,380
Oct.	117.0	7,192	332.0	20,409
Nov.	200.0	11,898	401.0	23,855
Dec.	229.0	14,077	330.0	20,286
		495,092 AF/year		559,086 AF/year

2 and 3). Sites are:

1. Rosebud Creek (Cottonwood Creek-Yellowstone River) #06296003
2. Hanging Woman Creek (Mouth of East Fork-Tongue River) #06307600
3. Otter Creek (Mouth of Bear Creek-Tongue River) #06307740
4. Pumpkin Creek (Mouth of Deer Creek-Tongue River) #06308400

For Hanging Woman, Otter, and Pumpkin creeks, the Board granted the historic minimum monthly flows as the instream reservation rather than percentile flows. Since a reliable method for synthesizing the flows prior to the establishment of these three gages has not been established for these prairie streams, the historic period was limited to the period the gages were operated. These records include drought years in 1977 and 1984.

1985 DROUGHT

Since the Board established the Yellowstone Water Reservations on December 15, 1978, a number of water use permits have been issued which are junior to the Yellowstone Reservations. The MDFWP holds substantial instream flow reservations in the Yellowstone basin which can affect water availability for junior water permit holders under certain low flow conditions.

It is the policy of the MDFWP to notify all junior water permit applicants, at the time they apply for a water use permit, of the existence of the MDFWP instream flow reservation. They are informed that, under certain low stream flow conditions, the instream flow reservation may affect water availability for their project. All water use permits in the Yellowstone basin junior to the instream flow reservation are conditioned to recognize and be subject to the reservation.

Snow survey reports issued by the SCS predicted that the Yellowstone basin would experience severe water shortages in the summer of 1985, with stream flows ranging from 30-70% of normal. It was anticipated that flows would fall below those amounts granted in the Yellowstone Reservation of 1978 for the protection of fish and wildlife habitats and the maintenance of water quality. To protect these instream reservations, the MDFWP on July 2, 1985 sent a letter to the 101 junior water permit holders on those streams having an instream flow reservation, notifying them of the current drought and the fact that the instream reservation could affect their water use during the irrigation season (see letter in Appendix B). This letter also pointed out that it was the junior permit holder's responsibility to determine when stream flows fell below the amounts reserved for instream purposes, and to cease withdrawing water when that level was reached. Each permittee was assigned a specific USGS gage to monitor flows, and requested to contact the Water Rights Field offices in Bozeman, Billings or Miles City to obtain current flow information. The Department of Health and Environmental Sciences followed

Table 2. Quantification of the granted percentile flows for Rosebud Creek (Gage #06296003) in cubic feet of water per second and acre-feet per month. Flow quantifications are adjusted to the 1934-82 base period.

Rosebud Creek
80th Percentile

	<u>cfs</u>	<u>AF</u>
Jan.	7.0	430
Feb.	18.0	999
Mar.	22.0	1,352
Apr.	36.0	2,142
May	28.0	1,721
Jun.	37.0	2,201
Jul.	9.0	553
Aug.	7.0	430
Sep.	2.0	119
Oct.	9.0	553
Nov.	10.0	595
Dec.	12.0	738

11,833 AF/year

Table 3. Quantification of the historic minimum monthly flows for Hanging Woman (Gage #06307600), Otter (Gage #06307740), and Pumpkin (Gage #06308400) creeks in cubic feet of water per second and acre-feet per month.

	<u>Hanging Woman Creek</u> <u>a/</u>		<u>Otter Creek</u> <u>b/</u>	
	<u>cfs</u>	<u>AF</u>	<u>cfs</u>	<u>AF</u>
Jan.	0.30	18.4	1.67	102.7
Feb.	0.60	33.3	1.87	103.8
Mar.	0.66	40.6	2.65	162.9
Apr.	0.61	36.3	1.59	94.6
May	0.52	32.0	2.61	160.4
Jun.	0.34	20.2	2.14	127.3
Jul.	0.01	0.6	0.28	17.2
Aug.	0.00	0.0	0.08	4.9
Sep.	0.00	0.0	0.13	7.7
Oct.	0.04	2.5	0.40	24.6
Nov.	0.18	10.7	1.63	97.0
Dec.	0.06	<u>3.7</u>	2.05	<u>126.0</u>
		198.3 AF/year	1,029.1 AF/year	

	<u>Pumpkin Creek</u> <u>b/</u>	
	<u>cfs</u>	<u>AF</u>
Jan.	0.00	0.0
Feb.	0.00	0.0
Mar.	0.01	0.6
Apr.	0.00	0.0
May	0.00	0.0
Jun.	0.00	0.0
Jul.	0.00	0.0
Aug.	0.00	0.0
Sep.	0.00	0.0
Oct.	0.00	0.0
Nov.	0.00	0.0
Dec.	0.00	0.0
		0.6 AF/year

a/ Period of record September 1973 through September 1984.

b/ Period of record October 1972 through September 1984.

with a similar letter on July 24. Twice a week between July 8 and October 3, 1985 the MDFWP obtained from the USGS the current flow readings for the 10 gaging sites, recorded these flows along with the amounts of the instream reservation for each site on data sheets (see example in Appendix C) and sent these to the Water Rights Field offices to relay to the callers.

The MDFWP closely monitored stream flows throughout the summer. By early August flows had dropped far below the reserved instream flows on a number of streams and little relief was in sight. Critically low streams having a significant number of junior permit holders included the Stillwater, Big Horn and Tongue rivers. Junior permittees on these 3 streams (34 in total) were informed by letter on August 20 that if they had not already ceased withdrawing water, they were required to do so at this time (see letter in Appendix D).

Above normal rainfall in August and September helped to alleviate the drought, and, by mid to late September, many streams were flowing at or near normal levels.

MUNICIPAL WATER RESERVATIONS

Water permit applications for two subdivisions within the Billings area have raised a number of questions regarding the Board's intent when water reservations were granted in 1978 to various cities within the Yellowstone Basin. The two subdivisions, Lockwood (#54172-S43Q) and Cedar Park (#57973-S43Q), applied to appropriate water from the Yellowstone River for municipal purposes.

The MDFWP informed each applicant of the water reserved to the City of Billings for municipal uses, and that if the application is not for a portion of this reserved water, the permit would be junior to the Department's instream flow reservation for the Yellowstone River. A municipality needs a dependable, continuous, year-round water supply, requirements that could not be satisfied in all months in all years if the permit was subject to the terms of the instream reservation.

The stipulations imposed by the City of Billings for use of a portion of its reserved waters were unacceptable to Lockwood and use of these waters was subsequently denied by Billings. Cedar Park was also not willing to agree to the conditions proposed by the City of Billings, a copy of which is attached as Appendix E. Lockwood then applied for a provisional permit under 85-2-311, MCA. The objections of a number of Conservation Districts to Lockwood's application resulted in the scheduling of a hearing. The question of whether or not Lockwood was entitled to be issued a permit for the use of reserved waters was considered by the hearings examiner under Section 85-2-316(7), MCA, and under the authority granted in paragraph 18(b) of the Board's 1978 Order as amended by subsequent Order of September 12, 1980. The examiner, however, was unable to

make a determination without clearer evidence of the Board's intent when it granted municipal reservations to Billings and other cities. DNRC adopted the hearing examiner's proposal without any significant changes in substance as DNRC's final order. The major issues needing clarification by the Board and brought to light in the DNRC's final order were:

1. In support of their reservation applications, municipalities projected what their future water needs would be based on the anticipated population growth within a specified planning area. If a subdivision or other land unit was included in this planning area, are the present and future residents therefore entitled to a portion of the reserved water and, if so, does the city have the authority to impose stipulations, such as annexation and connection to the city's water lines, as requirements for the use of these waters? If the Board intended to allow stipulations, what stipulations are reasonable?
2. Is the term "planning area" equal to the term "water service area" which was ultimately used in granting Billings' reservation?

Lockwood was eventually granted an provisional permit that was subject to all existing rights and reservations. The circumstances of the recent Cedar Park application were similar and resolved in a like manner. In effect, the use of reserved water was denied to both Lakewood and Cedar Park.

There are at least two procedural avenues by which the above questions could come before the Board for resolution. First, an entity, such as Lockwood Water Users Association or Cedar Park Subdivision, could make an application directly to the Board. The application, probably in the form of a request for a declaratory ruling by the Board, would ask the Board to rule on the meaning of the Orders granting a reservation for municipal use to the City of Billings. The Board would be asked to determine if the applicant is eligible to use the municipal reservation and, if eligible, whether the City of Billings may impose conditions on the use of the reserved water. Additionally, if the City of Billings may impose conditions, what conditions may be imposed without violating the terms and conditions of the municipal water reservation.

Second, the DNRC may issue a permit for reserved water. Specifically, DNRC "...may, with the approval of the Board, issue the permit subject to such terms and conditions it considers necessary for the protection of the objectives of the reservation." Section 85-2-316(7), MCA. DNRC declined to consider granting a permit for reserved water because it could not determine whether Lockwood Water Users Association was entitled to use a portion of the municipal reservation of the City of Billings. See Proposal and Final Order In the Matter of the Application for Beneficial Water Use Permit No. 54172-S43Q by Lockwood Water Users Association. MDFWP believes

that a reasonable approach to resolving these issues would be for the DNRC itself to ask the Board for a declaratory ruling as to the meaning of the Board's Orders granting a water reservation to the City of Billings or to ask for the Board's approval under Section 85-2-316(7), MCA, and certified to the Board for resolution any issues as to the meaning of the Board's Orders. Such a process would be within the specific meaning and intent of Section 85-2-316(7), MCA, and within the meaning and intent of the reservation system taken as a whole.

Subdivisions around Billings will probably continue to opt to develop their own water systems due to the high cost of meeting the stipulations required for the use of the city's reserved waters. This development of municipal water supplies that are independent of the municipal reservations appears contrary to the intent of the Board when it established the municipal reservation. We believe the issues raised by these two applications require clarification by the Board and the establishment of guidelines for the allotment of a municipality's reserved waters.

APPENDIX A



United States Department of the Interior

GEOLOGICAL SURVEY

Water Resources Division
Federal Building, Drawer 10076
301 South Park Avenue
Helena, Montana 59626-0076

RECEIVED - 3 1985

December 2, 1985

Mr. Fred Nelson
Montana Department of Fish,
Wildlife, and Parks
8695 Huffine Lane
Bozeman, Montana 59715

Dear Fred:

Enclosed are the tables of our discharge measurements through October; historic minimum monthly mean discharge for each month for the period of record through 1984 on Hanging Woman Creek, Otter Creek, and Pumpkin Creek; and percentile Q's using the HEC-4 adjustment to get 1934-82 flows for Bluewater Creek and Rosebud Creek.

If you need more information or have any questions, please let us know.

Sincerely,

James A. Hull

James A. Hull
Hydrologic Technician

Enclosures

Stream and location Clear Creek at Mouth near Roberts

Drainage area (mi²) 20.3 Lat. 45°22'26" Long. 109°08'44"

[illegible]

Stream and location Dry Creek at Mouth near Belfry

Drainage area (mi²) 43.3 Lat. 45°11'34" Long. 108°59'07"

[illegible]

Stream and location West Rosebud Creek bel. Ingersoll Creek near Fishtail

Drainage area (mi ²)	135	Lat. 45°23'54"	Long. 109°32'16"

[illegible]

Drainage area (mi²) 79.9 Lat. 45°16'39" Long. 109°38'26"

16

Stream and location Butcher Creek below The Forks near Luther

Drainage area (mi²) 9.69 Lat. 45°17'25" Long. 109°28'41"

[illegible]

Stream and location West Fishtail Creek at Mouth near Nye

Drainage area (mi ²)	15.1	Lat. 45°22'58"	Long. 109°40'54"

[illegible]

Stream and location East Fishtail Creek at Mouth near Nye

Drainage area (mi²) 11.0 Lat. 45°22'56" Long. 109°40'51"

[illegible]

Stream and location Little Rocky Creek ab. F.S. Bdy. near Nve

Drainage area (mi²) 19.5 Lat. 45°23'31" Long. 109°45'25"

[illegible]

Stream and location Sage Creek at Forest Service Boundry near Warren

Drainage area (mi²) 32.7 Lat. 45°13'04" Long. 108°34'16"

[illegible]

Stream and location	Emigrant Spring Creek near Emigrant
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Drainage area (mi²) Lat. 45°19'59" Long. 110°45'43"

[illegible]

Stream	and location
_____	North McDonald Spring Creek near Pray _____

Drainage area (mi²) Lat. 45°29'49" Long. 110°34'51"

[illegible]

Stream and location South McDonald Spring Creek near Pray

Drainage area (mi²) Lat. 45°29'29" Long. 110°35'40"

[illegible]

Stream and location Armstrong Spring Creek near Livingston (O'Haire - Depuy Bdy.)

Drainage area (mi²) Lat. 45°33'11" Long. 110°35'24"

[illegible]

MONTH = 10

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	30.0	20.0	20.0	20.0	28.0	28.0	27.0	27.0	27.0

MONTH = 11

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	32.0	31.0	30.0	20.0	20.0	28.0	28.0	28.0	26.0

MONTH = 12

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	31.0	31.0	30.0	29.0	29.0	28.0	28.0	27.0	27.0

MONTH = 1

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	31.0	31.0	30.0	30.0	29.0	28.0	28.0	27.0	26.0

MONTH = 2

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	30.0	30.0	30.0	20.0	29.0	28.0	28.0	28.0	27.0

MONTH = 3

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	31.0	30.0	30.0	29.0	29.0	29.0	23.0	27.0	27.0

MONTH = 4

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	31.0	31.0	30.0	30.0	20.0	20.0	29.0	28.0	28.0

MONTH = 5

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	31.0	30.0	20.0	20.0	20.0	28.0	28.0	27.0	27.0

MONTH = 6

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	31.0	30.0	29.0	28.0	27.0	27.0	26.0	26.0	25.0

MONTH = 7

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	20.0	28.0	27.0	26.0	26.0	25.0	24.0	24.0	24.0

MONTH = 8

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	28.0	27.0	27.0	26.0	26.0	26.0	25.0	25.0	25.0

MONTH = 9

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	30.0	20.0	20.0	28.0	28.0	27.0	27.0	26.0	26.0

Rock Creek Sta 06-203500

MONTH = 10

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
108.0 103.0 94.0 83.0 81.0 77.0 72.0 69.0 63.0

MONTH = 11

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
71.0 68.0 62.0 56.0 54.0 52.0 51.0 49.0 42.0

MONTH = 12

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
50.0 47.0 45.0 44.0 42.0 41.0 39.0 36.0 33.0

MONTH = 1

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
41.0 39.0 37.0 35.0 34.0 34.0 33.0 30.0 23.0

MONTH = 2

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
35.0 34.0 34.0 33.0 32.0 30.0 29.0 28.0 24.0

MONTH = 3

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
34.0 33.0 32.0 30.0 30.0 29.0 28.0 26.0 25.0

MONTH = 4

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
57.0 49.0 44.0 40.0 39.0 37.0 34.0 31.0 29.0

MONTH = 5

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
335.0 307.0 277.0 240.0 221.0 211.0 160.0 123.0 103.0

MONTH = 6

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
364.0 704.0 712.0 642.0 616.0 537.0 478.0 442.0 395.0

MONTH = 7

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
771.0 637.0 561.0 540.0 486.0 448.0 394.0 351.0 302.0

MONTH = 8

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
366.0 300.0 269.0 277.0 260.0 238.0 232.0 213.0 193.0

MONTH = 9

EXCEED. PERCENT
DISCHARGE

10. 20. 30. 40. 50. 60. 70. 80. 90.
181.0 169.0 162.0 148.0 146.0 132.0 124.0 120.0 97.0

1288
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775
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5 1975
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5 1982

1934-2

Sweet Grass Cr. 20 Melville

6-2005

STATION NUMBER = 5

0	MONTH = 10	10	20	50	60	70	80	90
0	EXCEED. PERCENT	67.0	49.0	37.0	30.0	23.0	25.0	20.0
0	DISCHARGE							
0	MONTH = 11	10	20	50	60	70	80	90
0	EXCEED. PERCENT	42.0	18.0	30.0	25.0	20.0	19.0	16.0
0	DISCHARGE							
0	MONTH = 12	10	20	50	60	70	80	90
0	EXCEED. PERCENT	27.0	22.0	19.0	16.0	13.0	11.0	10.0
0	DISCHARGE							
0	MONTH = 1	10	20	50	60	70	80	90
0	EXCEED. PERCENT	19.0	16.0	14.0	11.0	10.0	9.0	8.0
0	DISCHARGE							
0	MONTH = 2	10	20	50	60	70	80	90
0	EXCEED. PERCENT	16.0	14.0	12.0	10.0	9.0	8.0	7.0
0	DISCHARGE							
0	MONTH = 3	10	20	50	60	70	80	90
0	EXCEED. PERCENT	14.0	13.0	11.0	10.0	9.0	8.0	7.0
0	DISCHARGE							
0	MONTH = 4	10	20	50	60	70	80	90
0	EXCEED. PERCENT	23.0	18.0	14.0	13.0	12.0	11.0	10.0
0	DISCHARGE							
0	MONTH = 5	10	20	50	60	70	80	90
0	EXCEED. PERCENT	30.0	28.0	19.0	16.0	15.0	14.0	13.0
0	DISCHARGE							
0	MONTH = 6	10	20	50	60	70	80	90
0	EXCEED. PERCENT	18.0	17.0	12.0	10.0	9.0	8.0	7.0
0	DISCHARGE							
0	MONTH = 7	10	20	50	60	70	80	90
0	EXCEED. PERCENT	27.0	20.0	19.0	16.0	15.0	14.0	13.0
0	DISCHARGE							
0	MONTH = 8	10	20	50	60	70	80	90
0	EXCEED. PERCENT	18.0	17.0	12.0	10.0	9.0	8.0	7.0
0	DISCHARGE							
0	MONTH = 9	10	20	50	60	70	80	90
0	EXCEED. PERCENT	20.0	20.0	14.0	13.0	12.0	11.0	10.0
0	DISCHARGE							
0	MONTH = 10	10	20	50	60	70	80	90
0	EXCEED. PERCENT	22.0	22.0	14.0	13.0	12.0	11.0	10.0
0	DISCHARGE							
0	MONTH = 11	10	20	50	60	70	80	90
0	EXCEED. PERCENT	20.0	20.0	14.0	13.0	12.0	11.0	10.0
0	DISCHARGE							
0	MONTH = 12	10	20	50	60	70	80	90
0	EXCEED. PERCENT	20.0	20.0	14.0	13.0	12.0	11.0	10.0
0	DISCHARGE							

TOTAL
2640
1814
2906
4093
4535
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211
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YEAR
1974
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RECORDED AND RECONSTITUTED LOGS

Clark's Fork near Belfry Sta 00-207500

MONTH = 10

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 462.0 357.0 316.0 294.0 267.0 224.0 194.0 160.0 117.0

MONTH = 11

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 409.0 379.0 329.0 308.0 285.0 268.0 251.0 225.0 200.0

MONTH = 12

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 333.0 314.0 295.0 282.0 271.0 260.0 253.0 239.0 229.0

MONTH = 1

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 252.0 271.0 257.0 253.0 242.0 226.0 225.0 209.0 186.0

MONTH = 2

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 291.0 257.0 251.0 247.0 237.0 233.0 220.0 202.0 194.0

MONTH = 3

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 372.0 249.0 245.0 235.0 225.0 221.0 216.0 205.0 139.0

MONTH = 4

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 307.0 528.0 454.0 339.0 340.0 313.0 277.0 254.0 250.0

MONTH = 5

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 3029.0 2633.0 2392.0 2133.0 1912.0 1615.0 1485.0 1173.0 1062.0

MONTH = 6

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 5755.0 5299.0 4689.0 4421.0 4095.0 3753.0 3677.0 3101.0 2783.0

MONTH = 7

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 3888.0 3515.0 2840.0 2458.0 2191.0 1736.0 1640.0 1512.0 903.0

MONTH = 8

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 1071.0 977.0 799.0 627.0 530.0 491.0 423.0 372.0 279.0

MONTH = 9

EXCEED. PERCENT 10. 20. 30. 40. 50. 60. 70. 80. 90.
DISCHARGE 553.0 476.0 414.0 342.0 290.0 260.0 240.0 194.0 160.0

Little Fork at Edgar Sta 06.202500

MONTH = 10									
EXCEED. PERCENT DISCHARGE	10. 745.0	20. 627.0	30. 575.0	40. 546.0	50. 500.0	60. 470.0	70. 424.0	80. 364.0	90. 332.0
MONTH = 11									
EXCEED. PERCENT DISCHARGE	10. 613.0	20. 537.0	30. 544.0	40. 522.0	50. 495.0	60. 473.0	70. 450.0	80. 430.0	90. 401.0
MONTH = 12									
EXCEED. PERCENT DISCHARGE	10. 484.0	20. 474.0	30. 453.0	40. 443.0	50. 427.0	60. 412.0	70. 407.0	80. 369.0	90. 330.0
MONTH = 1									
EXCEED. PERCENT DISCHARGE	10. 471.0	20. 444.0	30. 419.0	40. 390.0	50. 379.0	60. 369.0	70. 348.0	80. 333.0	90. 300.0
MONTH = 2									
EXCEED. PERCENT DISCHARGE	10. 460.0	20. 444.0	30. 412.0	40. 402.0	50. 382.0	60. 362.0	70. 340.0	80. 323.0	90. 299.0
MONTH = 3									
EXCEED. PERCENT DISCHARGE	10. 511.0	20. 449.0	30. 405.0	40. 396.0	50. 374.0	60. 350.0	70. 346.0	80. 323.0	90. 308.0
MONTH = 4									
EXCEED. PERCENT DISCHARGE	10. 446.0	20. 451.0	30. 503.0	40. 512.0	50. 483.0	60. 456.0	70. 428.0	80. 388.0	90. 357.0
MONTH = 5									
EXCEED. PERCENT DISCHARGE	10. 2982.0	20. 2640.0	30. 2432.0	40. 2279.0	50. 1925.0	60. 1769.0	70. 1551.0	80. 1279.0	90. 1051.0
MONTH = 6									
EXCEED. PERCENT DISCHARGE	10. 5963.0	20. 5449.0	30. 4866.0	40. 4560.0	50. 4172.0	60. 4018.0	70. 3569.0	80. 3301.0	90. 2877.0
MONTH = 7									
EXCEED. PERCENT DISCHARGE	10. 3863.0	20. 3336.0	30. 2857.0	40. 2373.0	50. 2142.0	60. 1669.0	70. 1537.0	80. 1190.0	90. 743.0
MONTH = 8									
EXCEED. PERCENT DISCHARGE	10. 1242.0	20. 963.0	30. 826.0	40. 683.0	50. 568.0	60. 478.0	70. 399.0	80. 346.0	90. 292.0
MONTH = 9									
EXCEED. PERCENT DISCHARGE	10. 935.0	20. 783.0	30. 607.0	40. 574.0	50. 464.0	60. 424.0	70. 303.0	80. 319.0	90. 249.0

MONTH = 10

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	44.0	39.0	30.0	24.0	19.0	16.0	12.0	9.0	3.0

MONTH = 11

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	52.0	50.0	39.0	32.0	24.0	19.0	13.0	10.0	2.0

MONTH = 12

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	46.0	36.0	33.0	26.0	23.0	19.0	16.0	12.0	6.0

MONTH = 1

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	32.0	27.0	23.0	18.0	14.0	11.0	9.0	7.0	4.0

MONTH = 2

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	121.0	90.0	63.0	43.0	28.0	24.0	19.0	18.0	15.0

MONTH = 3

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	178.0	104.0	83.0	71.0	62.0	44.0	32.0	22.0	17.0

MONTH = 4

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	127.0	98.0	76.0	65.0	53.0	51.0	43.0	36.0	16.0

MONTH = 5

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	323.0	244.0	197.0	112.0	83.0	55.0	35.0	28.0	21.0

MONTH = 6

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	154.0	128.0	97.0	74.0	70.0	56.0	47.0	37.0	30.0

MONTH = 7

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	51.0	42.0	36.0	29.0	22.0	15.0	12.0	9.0	4.0

MONTH = 8

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	41.0	29.0	25.0	21.0	14.0	9.0	8.0	7.0	5.0

MONTH = 9

EXCEED. PERCENT	10.	20.	30.	40.	50.	60.	70.	80.	90.
DISCHARGE	33.0	24.0	13.0	11.0	7.0	5.0	3.0	2.0	1.0

<u>Month</u>	Historic <u>Minimum CFS</u>
October	0.04
November	0.18
December	0.06
January	0.30
February	0.60
March	0.66
April	0.61
May	0.52
June	0.34
July	0.01
August	0.00
September	0.00

<u>Month</u>	<u>Historic Minimum</u>
October	0.40
November	1.63
December	2.05
January	1.67
February	1.87
March	2.65
April	1.59
May	2.61
June	2.14
July	0.28
August	0.08
September	0.13

<u>Month</u>	Historic <u>Minimum CFS</u>
October	0.00
November	0.00
December	0.00
January	0.00
February	0.00
March	0.01
April	0.00
May	0.00
June	0.00
July	0.00
August	0.00
September	0.00

APPENDIX B

**Montana Department
of
Fish, Wildlife & Parks**



1420 East Sixth Avenue
Helena, Montana 59620
July 2, 1985

Dear Water Permit Holder:

Current predictions indicate that flows will be unusually low this summer in many Montana streams. These low flows may cause inconvenience and hardship for persons dependent on that water for their livelihood as well as fish and other water-dependent wildlife.


Foreseeing such possibilities, the 1973 Montana Legislature passed the Montana Water Use Act, which established a process for reserving water in Montana's streams for future uses. Included was the opportunity to reserve instream flows for the protection of fish and wildlife habitats and the maintenance of water quality. In 1974-1978 this process was applied to the Yellowstone River and its tributaries, with the order allocating the flows among the various users signed on December 15, 1978. A significant portion of the flow was reserved for instream purposes. Consequently, Yellowstone drainage water permit holders having priority dates later than December 15, 1978 are subject to the minimum instream flows established by the reservation.

During this drought year, the Montana Department of Fish, Wildlife and Parks is requesting that all junior water users comply with the intent of the Yellowstone reservation and cease withdrawing water when flows drop below levels reserved for instream purposes. Ten USGS gauge sites within the Yellowstone drainage have been temporarily designated to monitor compliance with the terms of the instream reservation. The designated gauge for your diversion is listed on the enclosure. Also listed are the granted instream flows by month for this gauge site.

It is the responsibility of the permit holder to determine when the stream flow at the designated gauge falls below the granted instream flow. When this level is reached, junior permit holders are legally obligated to cease withdrawing water. Current stream flow information for your designated gauge can be obtained by calling the Water Rights Bureau field office in Billings (657-2105), Bozeman (586-3136), or Miles City (232-6359).

This letter is being sent to all water permit holders of record having permits junior to the instream flow reservation. While it is not our intent to cause undue hardship, it is incumbent upon us to protect the rights granted for the protection of fish, wildlife and water quality. Your adherence to the law and judicious use of water during this drought period will aid us in that endeavor.

Sincerely,


James W. Flynn
Director

SHIELDS RIVER
INSTREAM RESERVATION

Shields River near Livingston (Gage #06195600)

<u>Month</u>	<u>Cubic Feet Per Second (CFS)</u>
January	26
February	29
March	44
April (1-15)	93
April (16-30)	39
May (1-10)	83
May (11-20)	137
May (21-31)	184
June (1-10)	189
June (11-20)	157
June (21-30)	105
July	22
August	13
September	13
October	30
November	27
December	31

YELLOWSTONE RIVER
INSTREAM RESERVATION

Yellowstone River near Livingston (Gage #06192500)

Month	Cubic Feet Per Second (CFS)
January	1,330
February	1,320
March	1,350
April	2,490
May (1-10)	2,500
May (11-20)	1,900
May (21-31)	4,700
June (1-10)	7,700
June (11-20)	9,000
June (21-30)	8,000
July (1-10)	5,400
July (11-20)	3,800
July (21-31)	2,500
August (1-10)	1,600
August (11-31)	2,125
September	1,555
October	2,350
November	1,790
December	1,490

YELLOWSTONE RIVER
INSTREAM RESERVATION

Yellowstone River at Billings (Gage #06214500)

<u>Month</u>	<u>Cubic Feet Per Second (CFS)</u>
January	2,483
February	2,484
March	2,883
April	3,580
May (1-20)	5,121
May (21-31)	12,200
June (1-7)	17,236
June (8-30)	18,716
July (1-10)	10,274
July (11-31)	4,000
August	3,500
September	3,107
October	3,573
November	3,478
December	2,781

STILLWATER RIVER
INSTREAM RESERVATION

Stillwater River near Absarokee (Gage #06205000)

Month	Cubic Feet Per Second (CFS)
January	200
February	205
March	210
April	225
May	560
June	2,075
July	1,030
August	480
September	480
October	380
November	225
December	225

BOULDER RIVER
INSTREAM RESERVATION

Boulder River at Big Timber (Gage #06200000)

<u>Month</u>	<u>Cubic Feet Per Second (CFS)</u>
January	80
February	80
March	80
April	80
May	300
June	1,690
July	490
August	60
September	95
October	130
November	80
December	80

BIGHORN RIVER
INSTREAM RESERVATION

Bighorn River above Tullock Creek near Bighorn (Gage #06294500)

<u>Month</u>	<u>Cubic Feet Per Second (CFS)</u>
January	3,300
February	3,200
March	4,000
April	3,600
May	3,800
June	5,200
July (1-20)	3,800
July (21-31)	3,200
August	2,800
September	2,600
October	2,700
November	3,100
December	3,200

YELLOWSTONE RIVER
INSTREAM RESERVATION

Yellowstone River near Sidney (Gage # 06329500)

<u>Month</u>	<u>Cubic Feet Per Second (CFS)</u>
January	3,738
February	4,327
March	6,778
April	6,808
May	11,964
June	25,140
July	10,526
August	2,670
September	3,276
October	6,008
November	5,848
December	3,998

TONGUE RIVER
INSTREAM RESERVATION

Tongue River at Miles City (Gage #06308500)

<u>Month</u>	<u>Cubic Feet Per Second (CFS)</u>
January	75
February	75
March	75
April	75
May	75
June	75
July	75
August	75
September	75
October	75
November	75
December	75

POWDER RIVER
INSTREAM RESERVATION
Powder River near Locate (Gage #06326500)

<u>Month</u>	<u>Cubic Feet Per Second (CFS)</u>
January	31.9
February	71.8
March	291
April	347
May	424
June	184
July	70
August	14.5
September	8.87
October	9.43
November	61.6
December	61

YELLOWSTONE RIVER
INSTREAM RESERVATION

Yellowstone River at Miles City (Gage #06309000)

Month	Cubic Feet Per Second (CFS)
January	3,829
February	3,998
March	6,359
April	5,848
May	12,280
June	26,188
July	10,278
August	3,862
September	4,338
October	5,849
November	5,508
December	4,009

APPENDIX C

Yellowstone Basin Flow Update

Date: August 22, 1985

Gage	Flow (cfs)	Instream Reservation (cfs)
Bighorn River above Tullock Cr., near Bighorn	1,730	2,800
Boulder River at Big Timber	163	60
Clarks Fork River near Belfry	-	-
Powder River near Locate	27	14.5
Shields River near Livingston	84	13
Stillwater River near Absarokee	460	480
Tongue River at Miles City	30	75
Yellowstone River near Sidney	5,480	2,670
Yellowstone River at Miles City	5,220	3,862
Yellowstone River at Billings	3,490	3,500
Yellowstone River near Livingston	2,370	2,125

APPENDIX D

**Montana Department
of
Fish, Wildlife & Parks**



1420 East Sixth Ave.
Helena, MT 59620
August 20, 1985

Dear Water Permit Holder:

The Montana Department of Fish, Wildlife and Parks and Department of Health and Environmental Sciences/Water Quality Bureau are again notifying junior permit holders in the Yellowstone Basin that water withdrawals must cease when flows are less than the instream flows granted in the Yellowstone water reservations of December 15, 1978. In our letters of July 2, 1985 and July 24, 1985, respectively, each junior permit holder was referred to a specific USGS gage to monitor flows and provided a list of the granted instream flows for that gage.

The Yellowstone River and several of its major tributaries are presently experiencing low flows which will adversely affect the fish, wildlife, and recreational resources and impair water quality. By copy of this letter, you are informed that streamflow levels have dropped below the granted instream flows at the gage assigned to monitor water availability for your junior water permit. In the event you have not already ceased withdrawing water, you are required to do so at this time.

This letter is being sent to all water permit holders of record having permits junior to the instream flow reservation for these streams where flows are below the granted instream flows. While it is not our intent to cause undue hardship, it is incumbent upon us to protect the rights granted for the protection of fish, wildlife and water quality. Your adherence to the law and judicious use of water during this drought period will aid us in that endeavor.

Sincerely,

James W. Flynn
Director

Department of Fish, Wildlife & Parks

Dr. John J. Drynan
Director
Department of Health & Environmental Sciences

JWF/LGP/sk

APPENDIX E



CITY OF BILLINGS
PUBLIC UTILITIES DEPARTMENT RECEIVED

P.O. BOX 30958
BILLINGS, MT 59111
PHONE (406) 657-8305

NOV 26 1985

FISHERIES DIV.

November 13, 1985

Mr. Henry Lindgren
4408 Bowman Drive
Billings, MT 59101

re: CEDAR PARK SUBDIVISION -
WATER USE PERMIT APPLICATION
WITH DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION

Dear Henry:

As you requested, we recently met with various officials of the Department of Natural Resources and Conservation (DNRC) here in Billings and discussed your application for a water use permit with them. Our attorneys have also studied this matter.

Consequently, we are now in a position to recommend to the City Administrator and City Council that the City offer a sale of untreated water to your subdivision, subject to the following conditions:

1. The maximum amount of untreated water to be sold to your subdivision is 200 gallons per minute. For this amount we will charge a nominal fee of about \$100 per year. We will accomplish the sale by written agreement, which will have a term of 5 years and be re-negotiated at the end of that time.
2. The sale of water will be under the City's water rights and not under its water reservation. (This offer by the City is restricted solely to a sale of a quantity of water under the City's water rights, and it does not involve any rights relating to reservation of water under the Montana Water Use Act of 1973.)
3. If such is required by DNRC, your subdivision will be responsible for filing with them an application for an additional point of diversion to take water from the Yellowstone River under the City's water rights.
4. Your subdivision will be responsible for constructing your own diversion, treatment, transmission, storage and distribution facilities. The cost of constructing all such facilities will be borne by your subdivision, not the City.
5. The sale of untreated water will be subject to the condition that one hundred percent of the owners of property in your subdivision file a waiver of their right to protest annexation to the City of Billings as well as any other conditions deemed appropriate by the City Council.

↑
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Henry Lindgren
September 13, 1985
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6. Your subdivision will not obtain under the water sale agreement any license, conveyance, or other interest whatever in the City's water rights, and of course not any interest in the City's water reservation either.
7. Your subdivision must use the purchased water only for municipal purposes.
8. Your subdivision must construct its water facilities in accordance with the standards of the State Department of Health and Environmental Sciences. In addition, your subdivision must assume full legal and operational responsibility for its water facilities as a privately owned system. Further, your subdivision must hold the City harmless from any and all claims and liabilities.
9. This sale of untreated water does not obligate the City to provide any other service to your subdivision, nor does it constitute the inclusion of your subdivision within the City's water service area.
10. This sale of untreated water is also conditioned upon your subdivision's keeping the City fully informed about all matters that may impact in any way the City's water rights and/or water reservation.

If the above terms and conditions regarding the sale of untreated water are agreeable to your subdivision, please so advise me and I'll draft a water sale agreement incorporating such terms and conditions therein and submit it to the City Administrator and City Council for their review and consideration.

Very truly yours,



Gerald D. Underwood, P.E.
Public Utilities Director

GDU:slh

cc: Mr. Calvin Calton
File

